

**WHAT IS CLAIMED IS:**

1. In a mobile communication system for providing a broadcast service to a plurality of mobile stations over a radio channel, wherein broadcast data is encrypted with predetermined encryption information and provided to the mobile station, a method for receiving a broadcast service in the mobile station, comprising the steps of:

generating a registration message including a predetermined registration identifier for identification of the encryption information, and transmitting the generated registration message to a base station;

10 receiving updated encryption information for decryption of the broadcast data from the base station; and

updating the registration identifier based on the updated encryption information.

15 2. The broadcast service method of claim 1, wherein the predetermined encryption information includes at least one of a predetermined mask key required for decryption of the broadcast data, generation information for the mask key, and a lifetime of the mask key.

20 3. The broadcast service method of claim 2, wherein the registration identifier includes a hash value determined by applying a hash function to a corresponding mask key each time the mask key is updated.

25 4. The broadcast service method of claim 2, wherein the registration identifier includes a sequence number sequentially assigned to a corresponding mask key each time the mask key is updated.

5. The broadcast service method of claim 1, wherein the registration message is a message that is transmitted from the mobile station to the base station for a predetermined time while the mobile station is using a broadcast service.

5 6. The broadcast service method of claim 1, wherein the encryption information is generated by a packet data service node and transmitted to the mobile station via the base station.

7. The broadcast service method of claim 1, wherein the encryption 10 information is generated by the base station and transmitted to the mobile station.

8. The broadcast service method of claim 1, wherein the step of receiving updated encryption information is performed when a registration identifier transmitted by the mobile station is identical to a registration identifier currently 15 valid in the base station.

9. In a mobile communication system for providing a broadcast service to a plurality of mobile stations over a radio channel, a method for providing by a base station a broadcast service to the mobile station, comprising the steps of:

20 receiving a registration message transmitted from the mobile station; determining whether a registration identifier for identification of encryption information required for decryption of broadcast data is included in the registration message, and determining whether it is necessary to transmit updated encryption information to the mobile station; and  
25 transmitting the updated encryption information to the mobile station according to the determination result.

10. The broadcast service method of claim 9, wherein the predetermined encryption information includes at least one of a predetermined mask key required for decryption of the broadcast data, generation information for the mask key, and a lifetime of the mask key.

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11. The broadcast service method of claim 10, wherein the registration identifier includes a hash value determined by applying a hash function to a corresponding mask key each time the mask key is updated.

10 12. The broadcast service method of claim 10, wherein the registration identifier includes a sequence number sequentially assigned to a corresponding mask key each time the mask key is updated.

13. The broadcast service method of claim 9, further comprising  
15 performing an accounting process on the mobile station through a packet data service node when the base station transmits updated encryption information to the mobile station.

14. The broadcast service method of claim 9, further comprising  
20 holding a current state of the mobile station for a predetermined lifetime of the encryption information when the registration identifier of the mobile station is identical to a registration identifier available in the base station.

15. The broadcast service method of claim 9, wherein the step of  
25 transmitting updated encryption information is performed when the registration identifier of the mobile station is identical to a registration identifier currently valid in the base station.

16. The broadcast service method of claim 9, further comprising transmitting a predetermined response message to the mobile station in response to the registration message if it is determined that transmission of the updated  
5 encryption information is not necessary.

17. In a mobile communication system for providing a broadcast service to a plurality of mobile stations over a radio channel, wherein broadcast data is encrypted with predetermined encryption information and provided to the mobile  
10 station, a method for receiving a broadcast service in the mobile station, comprising the steps of:

generating a registration message including a predetermined mask key request bit for requesting transmission of the predetermined mask key for decryption of broadcast data and transmitting the generated registration message to a base  
15 station while the mobile station is using a broadcast service; and

receiving the encryption information including the predetermined mask key and lifetime information of the predetermined mask key from the base station based on the mask key request bit.

20 18. The broadcast service method of claim 17, further comprising generating another registration message for requesting a new mask key and transmitting the generated registration message to the base station if the lifetime of the mask key has expired.

25 19. In a mobile communication system for providing a broadcast service to a plurality of mobile stations over a radio channel, a method for providing by a base station a broadcast service to the mobile station, comprising the steps of:

receiving a registration message including a predetermined mask key request bit for requesting transmission of the predetermined mask key for decryption of broadcast data, from the mobile station;

analyzing a value of the predetermined mask key request bit to determine  
5 whether to transmit the encryption information including the predetermined mask key and lifetime information of the predetermined mask key; and

transmitting the encryption information to the mobile station when the base station determines to transmit the encryption information.

10        20. In a mobile communication system for providing a broadcast service to a plurality of mobile stations over a radio channel, wherein broadcast data is encrypted with predetermined encryption information and provided to the mobile station, a method for receiving a broadcast service in the mobile station, comprising the steps of:

15        generating a registration message for use of a broadcast service and transmitting the generated registration message to the base station within a predetermined skew time before a lifetime of current encryption information expires;

20        receiving the current encryption information and next encryption information including their lifetimes from the base station in response to the registration message; and

continuously decrypting the broadcast data using the next encryption information when the lifetime of the current encryption information expires.

25        21. The broadcast service method of claim 20, wherein the predetermined skew time is set to a time longer than a maximum period among registration message transmission periods of all mobile stations receiving a

broadcast service in a service area of the base station.

22. In a mobile communication system for providing a broadcast service to a plurality of mobile stations over a radio channel, a method for providing  
5 by a base station a broadcast service to the mobile station, comprising the steps of:

receiving a registration message for use of a broadcast service by the mobile station; and

transmitting current encryption information and next encryption information including their lifetimes to the mobile station if it is determined that the registration  
10 message was received within a predetermined skew time before the lifetime of the current encryption information expires.

23. The broadcast service method of claim 22, wherein the skew time is set to a time longer than a maximum period among registration message  
15 transmission periods of all mobile stations receiving broadcast service in a service area of the base station.

24. In a mobile communication system for providing a broadcast service to a plurality of mobile stations over a radio channel, a method for providing  
20 by a base station a broadcast service to the mobile station, comprising the steps of:

receiving a predetermined registration message for use of a broadcast service by the mobile station; and

transmitting next encryption information following current encryption information to the mobile station if it is determined that the registration message was  
25 received within a predetermined skew time before a lifetime of the current encryption information expires.

25. In a mobile communication system including a base station for providing a broadcast service to a plurality of mobile stations over a radio channel and a packet data service node for connecting the base station to a content server via a packet data network, wherein broadcast data is encrypted with predetermined encryption information and provided to the mobile station, a broadcast service method comprising the steps of:

transmitting, by the mobile station, a first registration message for initial use of a broadcast service to the base station;

upon receiving the first registration message, transmitting by the base station encryption information for decryption of broadcast data to the mobile station;

upon receiving the encryption information, generating by the mobile station a registration identifier which includes identification information of the encryption information;

generating by the mobile station a second registration message including the registration identifier and transmitting the generated second registration message to the base station if second or later registration for use of the broadcast service by the mobile station is required;

comparing by the base station the registration identifier included in the second registration message with a registration identifier of encryption information currently registered in the base station; and

transmitting updated encryption information to the mobile station.

26. The broadcast service method of claim 25, further comprising requesting by the base station an accounting process on the mobile station through the packet data service node if the registration identifiers are different.

27. The broadcast service method of claim 25, further comprising

holding by the base station the current encryption information of the mobile station and deferring an accounting process on the mobile station if the registration identifiers are identical.

5        28.      The broadcast service method of claim 25, wherein the encryption information includes at least one of a predetermined mask key required for decryption of the broadcast data, generation information for the mask key, and a lifetime of the mask key.

10       29.      The broadcast service method of claim 28, wherein the registration identifier includes a hash value determined by applying a hash function to a corresponding mask key each time the mask key is updated.

15       30.      The broadcast service method of claim 28, wherein the registration identifier includes a sequence number sequentially assigned to a corresponding mask key each time the mask key is updated.

20       31.      A broadcast service system including a base station for providing a broadcast service to a plurality of mobile stations over a radio channel and a packet data service node for connecting the base station to a content server via a packet data network, wherein broadcast data is encrypted with predetermined encryption information and provided to the mobile station, the system comprising:

25       at least one mobile station connected to the base station through the radio channel, for performing location registration for use of a broadcast service, decrypting the broadcast data using the predetermined encryption information transmitted via the base station while using the broadcast service, generating a registration identifier as identification information of the encryption information,

and transmitting the generated registration identifier to the base station; and  
at least one base station for transmitting to the mobile station broadcast data transmitted via the packet data service node while the mobile station is using the broadcast service, receiving a predetermined registration message transmitted during  
5 location registration of the mobile station, analyzing a registration identifier of the predetermined encryption information included in the registration message, and determining whether to update the predetermined encryption information for the mobile station according to the analysis result.

10        32.      The broadcast service system of claim 31, wherein the registration identifier includes a hash value determined by applying a hash function to a corresponding mask key each time the mask key is updated.

15        33.      The broadcast service system of claim 31, wherein the registration identifier includes a sequence number sequentially assigned to a corresponding mask key each time the mask key is updated.

20        34.      The broadcast service system of claim 31, wherein the base station performs an accounting process on the mobile station through the packet data service node when the base station transmitted updated encryption information to the mobile station.

25        35.      The broadcast service system of claim 32, wherein the base station receives a registration message including a predetermined mask key request bit for requesting transmission of the mask key from the mobile station while the mobile station is using a broadcast service, and transmitting predetermined encryption information including the mask key and lifetime information of the mask key to the

mobile station if the mask key request bit has a predetermined bit value.

36. The broadcast service system of claim 31, wherein the encryption information can be used for decryption of the broadcast data only for a  
5 predetermined lifetime, wherein the base station transmits to the mobile station both current encryption information and next encryption information including their lifetimes if it is determined that a registration message of the mobile station was received within a predetermined skew time before a lifetime of current encryption information expires, wherein the mobile station decrypts the broadcast data using the  
10 next encryption information when the lifetime of the current encryption information expires.